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EXAMINER

HUGHES, SCOTT A

ART UNIT PAPER NUMBER

3663

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/766,253

Applicant(s)

RAY ET AL.

Examiner

Scott A. Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 4/13/2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-29, 69-71, 91-92 is/are pending in the application.
- 4a) Of the above claim(s) 18, 69-71, 91 and 92 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-17 and 19-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant argues that claims 18, 69-71, and 91-92 should be examined since they depend from claim 9. As stated in the last office action, the applicant was required to elect the number of geophones in the case in a species election. Applicant elected the species of one geophone and identified claims 1-17 as reading on this election. Although applicant changed the dependence of claims 69-71 and 91-92 to depend from elected claim 9, they do not meet the elected species of one geophone and are therefore withdrawn from consideration. As explained the prior office action, claim 18 was withdrawn since it did not read on the election of one geophone. Applicant argues that applicant believes claims 1 and 9 to be in condition for allowance, the dependent claims reciting at least 3, 4 or 5 geophones should also be allowed. As claims 1 and 9 are generic to a case with a geophone, upon allowance of claims 1 and 9, their dependent claims that recite the species of two, three, four, or five geophones would also be allowed.

### ***Response to Arguments***

Applicant's amendment to claim 6 is sufficient to overcome the objection to the claims (the objection was listed as claim 5 being objected to, but applicant properly noticed that the error was actually in claim 6 and corrected the error).

Applicant's arguments filed 4/13/2006 have been fully considered but they are not persuasive.

Applicant argues that Donoho teaches a recorder that has a geophone housing which is separate and distinct from a control package housing. Applicant argues that these two are separate cases. This argument is not persuasive, because as shown in Fig. 1 of Donoho, the two different houses are joined together at least some of the time. When joined together, these two housing form one case which is shown in Fig. 1. The claim language recites only a "case having a wall defining an internal compartment" and then defines the components which are contained within the case. Donoho discloses a case made of the two housings that contains a geophone, a clock, a power source, and a seismic data recorder. Applicant's claim language does not exclude a case from being made of two types of housing (geophone and control package) that are joined together, one on top of the other and therefore Fig. 1 of Donoho reads on the claim.

Applicant argues that the geophone package can be isolated from the control package, and that they are therefore not a case. This is not persuasive because the two can also abut one another, forming a case as shown in Fig. 1.

Applicant argues that Donoho shows an external wire connecting the geophone housing to the control package housing. Applicant argues that applicant's invention does not require an external wire, as the geophones and control electronics are in a single case. This is not persuasive because there is nothing in the claim language about a connecting wire either in or external to the case. Further, the two housings of Donoho, when joined together as shown in Fig. 1, are a single case.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-11, 16-17, 19, 21, and 24-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Donoho.

With regard to claim 1, Donoho discloses a land based seismic data collection unit (abstract). Donoho discloses a case 125,141 (Fig. 1) having a wall 125,141 defining an internal compartment 140 (Figs. 1-2) (Column 6, Lines 9-20; Column 7, Line 60 to Column 8, Line 10). Donoho discloses (Fig. 1) a case made of the housing 125 and geophone compartment 141 made of the same material as the housing. As can be seen in Fig. 1, the housing 125 and geophone compartment 141 form one continuous case with the compartment for the geophones being a part of this case. Donoho discloses at least one geophone 140 disposed within the case (Fig. 2) (Column 7, Line 60 to Column 8, Line 10). Donoho discloses a clock 123 (Fig. 2) disposed within the case (Column 6, Lines 15-20; Column 7, Lines 14-26). Donoho discloses timing means, which is read as a clock since it keeps a time standard for the device. Donoho discloses a power source disposed within the case (Fig. 2) (Column 6, Lines 39-46). Donoho discloses a seismic data recorded disposed within the case (Column 6, Lines 15-20) (Fig. 2).

With regard to claim 2, Donoho discloses that the unit is self-contained and requires no external communications or controls during recording (Column 6, Line 9 to

Column 7, Line 55). Donoho discloses that the unit is self-contained (no hard-wire connection to the surface) and that the unit is capable of recording data without being in real-time contact with the surface.

With regard to claim 3, Donoho discloses that the case is watertight (Column 6-7). Donoho discloses that the device is for use on the seafloor, and therefore the device is watertight since the circuitry would not work if water got into the case.

With regard to claim 4, Donoho discloses that the case comprises a first plate 105 having a first periphery and a second plate 143 having a second periphery, wherein the plates are joined along their peripheries by the wall (Figs. 1,2) (Column 6, lines 9-20; Column 7, Line 60 to Column 8, Line 10).

With regard to claim 7, Donoho discloses that the case is defined by at least one plate 143 (Column 8, Lines 1-10).

With regard to claim 8, Donoho discloses that the geophone is disposed adjacent to the plate (Figs. 2,5,6). Column 8, Lines 1-10).

With regard to claim 9, Donoho discloses a land based seismic data collection unit (abstract). Donoho discloses a case 125,141 (Fig. 1) having a wall 125,141 defining an internal compartment 140 (Figs. 1-2) (Column 6, Lines 9-20; Column 7, Line 60 to Column 8, Line 10). Donoho discloses (Fig. 1) a case made of the housing 125 and geophone compartment 141 made of the same material as the housing. As can be seen in Fig. 1, the housing 125 and geophone compartment 141 form one continuous case with the compartment for the geophones being a part of this case. Donoho discloses at least one geophone 140 disposed within the case (Fig. 2) (Column 7, Line

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60 to Column 8, Line 10). Donoho discloses a clock 123 (Fig. 2) disposed within the case (Column 6, Lines 15-20; Column 7, Lines 14-26). Donoho discloses timing means, which is read as a clock since it keeps a time standard for the device. Donoho discloses a power source (Fig. 2) (Column 6, Lines 39-46). Donoho discloses a seismic data recorded disposed within the case (Column 6, Lines 15-20) (Fig. 2).

With regard to claim 10, Donoho discloses that the unit is self-contained and requires no external communications or controls during recording (Column 6, Line 9 to Column 7, Line 55). Donoho discloses that the unit is self-contained (no hard-wire connection to the surface) and that the unit is capable of recording data without being in real-time contact with the surface.

With regard to claim 11, Donoho discloses that the power source is disposed within the case (Fig. 2) (Column 6, Lines 39-46).

With regard to claim 16, Donoho discloses that the case defines an external surface 143, and the external surface is provided with ridges to enhance coupling of the unit with the earth (Fig. 6) (Column 7, Line 60 to Column 8, Line 10, Column 8, Lines 45-55).

With regard to claim 17, Donoho discloses that the case defines an external surface and that the external surface is provided with at least one spike 157 (Fig. 6) to enhance coupling with the earth (Column 8, Lines 45-55).

With regard to claim 19, Donoho discloses a tilt meter disposed within the case (Column 7, Lines 55-60). Donoho discloses a compass, which provides horizontal

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geophone orientation. This is read as being a tilt meter since it measure tilt with respect to magnetic north on the compass.

With regard to claim 21, Donoho discloses a radio unit 131 (Column 6, Lines 30-38).

With regard to claim 24, Donoho discloses an external connector in electrical communication with the geophone, the connector extending through the wall of the case and disposed within the wall 145 (Fig. 6) so as to be set in from the external surface of the wall (Fig. 2) (Column 8, Lines 1-10).

With regard to claim 25, Donoho discloses a water tight, pressure resistant cap disposed over the external connector 145 (Column 8, Lines 1-10). The connection must be water tight or else the electronic control package and geophones would not function.

With regard to claim 26, Donoho discloses a radio frequency identification 131 (Column 6, Lines 30-38).

With regard to claim 27, Donoho discloses that the power source provides all power to the unit while deployed (Column 6, Lines 39-46; Column 7). Donoho discloses the power source and states that the device is not externally connected to anything else during deployment, and therefore the power source provides all power to the unit.

With regard to claim 28, Donoho discloses that the power source is a lithium-ion battery (Column 6, Lines 39-46).

With regard to claim 29, Donoho discloses an internal control mechanism 123 for controlling all functions of the unit while deployed (Column 6, Lines 9-20).



***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-6 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donoho as applied to claim 1 above, and further in view of Corrigan.

With regard to claim 5, Donoho does not disclose that the case is defined by at least one substantially flat wall. The walls of Donoho are curved. Corrigan discloses a seismic sensor module that is made out of a water tight casing and that contains accelerometers (as an alternative to geophones), power supply, and control circuitry (Figs. 2a,b,3,4) (abstract; Column 1, Lines 35-42, Column 3, Line 55 to Column 4, Line 55). Corrigan discloses that the case is defined by at least one flat wall (inner portion of 226) (Figs, 2,ab). Corrigan further discloses that the whole device can be a box with flat sides instead of having the outside of the casing curved (Column 5, Lines 25-30). It would have been obvious to modify Donoho to include using a flat wall for the case that houses the electronics and seismic sensors as taught by Corrigan in order to fix the sensors to the wall so that their orientation is known and so that they are secured to the walls.

With regard to claim 6, Donoho does not disclose that the at least one geophone is disposed adjacent the flat wall. Corrigan discloses that the accelerometers 230 (alternative to geophones) are disposed adjacent to the flat wall 226. It would have been obvious to modify Donoho to include using a flat wall for the case that houses the electronics and seismic sensors as taught by Corrigan in order to fix the sensors to the wall so that their orientation is known and so that they are secured to the walls.

With regard to claim 14, Donoho does not disclose that the wall is non-spherical. The walls of Donoho are curved. Corrigan discloses a seismic sensor module that is made out of a water tight casing and that contains accelerometers (as an alternative to geophones), power supply, and control circuitry (Figs. 2a,b,3,4) (abstract; Column 1, Lines 35-42, Column 3, Line 55 to Column 4, Line 55). Corrigan discloses that the case is defined by at least one flat wall (inner portion of 226) (Figs, 2,ab). Corrigan further discloses that the whole device can be a box with flat sides instead of having the outside of the casing curved (Column 5, Lines 25-30). It would have been obvious to modify Donoho to include using a flat wall for the case that houses the electronics and seismic sensors as taught by Corrigan in order to fix the sensors to the wall so that their orientation is known and so that they are secured to the walls.

With regard to claim 15, Donoho does not disclose that the wall is non-hemispherical. The walls of Donoho are curved. Corrigan discloses a seismic sensor module that is made out of a water tight casing and that contains accelerometers (as an alternative to geophones), power supply, and control circuitry (Figs. 2a,b,3,4) (abstract; Column 1, Lines 35-42, Column 3, Line 55 to Column 4, Line 55). Corrigan discloses

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that the case is defined by at least one flat wall (inner portion of 226) (Figs. 2,ab).

Corrigan further discloses that the whole device can be a box with flat sides instead of having the outside of the casing curved (Column 5, Lines 25-30). It would have been obvious to modify Donoho to include using a flat wall for the case that houses the electronics and seismic sensors as taught by Corrigan in order to fix the sensors to the wall so that their orientation is known and so that they are secured to the walls.

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donoho as applied to claim 9 above, and further in view of Harmon.

With regard to claim 12, Donoho does not disclose that that power source includes a fuel cell attached to the case. Donoho discloses batteries as the power source. Harmon discloses that fuel cells are an alternative to batteries and that they can be used as an external power source attached to a device (Column 6, Lines 55-60). It would have been obvious to modify Donoho to use a fuel cell instead of a battery as a power source in order to have a longer lasting source of power.

With regard to claim 13, Donoho does not disclose that the power source includes a solar cell attached to the case. Donoho discloses batteries as the power source. . Harmon discloses that solar cells are an alternative to batteries and that they can be used as an external power source attached to a device (Column 6, Lines 55-60). It would have been obvious to modify Donoho to use a solar cell instead of a battery as a power source in order to have a renewable power source that is easily rechargeable.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Donoho as applied to claim 1 above, and further in view of Wood.

With regard to claim 20, Donoho does not disclose a GPS location transducer. Donoho discloses acoustic location transducers, but not the use of GPS (Column 6, Lines 45-60). Wood discloses that GPS receivers are used with geophones to determine the position from which the seismic data was recorded (abstract). It would have been obvious to modify Donoho to use GPS instead of acoustic location so that the device could be located when it is in a position where an acoustic signal can not reach it or when it is in a position where GPS would be more accurate.

Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Donoho as applied to claim 9 above, and further in view of Sternberg.

With regard to claim 22, Donoho does not disclose that the clock is a crystal clock. Sternberg discloses the use of crystal clocks in a seismic recording system (Column 6, Lines 33-52). It would have been obvious to modify Donoho to include a crystal clock as disclosed by Sternberg in order to have a stable clock in order to maintain timing accuracy.

With regard to claim 23, Donoho does not disclose that the clock is a rubidium clock. Sternberg discloses the use of rubidium clocks in a seismic recording system (Column 6, Lines 33-52). It would have been obvious to modify Donoho to include a rubidium clock as disclosed by Sternberg in order to have a stable clock in order to maintain timing accuracy.

***Conclusion***

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SAH



JACK KEITH  
SUPERVISORY PATENT EXAMINER